



4.0 TENTATIVELY SELECTED PLAN (*NEPA REQUIRED)

The NED Tentatively Selected Plan (TSP) is the Nonstructural 0-25 Year Floodplain Plan.

The NER TSP is Alternative Plan CM-4.

4.1 The National Economic Development (NED) Plan

4.1.1 Description of the NED TSP

The NED TSP (Nonstructural 0-25 Year Floodplain Plan a/k/a “Modified Plan 8”) consists of the following measures. See Appendix “L” entitled “Draft Implementation Plan” for additional details on the nonstructural plan and methods of implementation.

1. Elevation of eligible residential structures. The term “base flood” is defined by the National Flood Insurance Program as the “flood having a 1% chance of being exceeded in any given year and is also called the 100 year flood.” For the purposes of this study, this base flood elevation has been forecast into the future based on anticipated hydrologic conditions in the year 2075. This measure requires lifting the entire structure or the habitable area to the predicted 2075, 100-year base flood elevation unless the required elevation is greater than a maximum of 13 feet above ground level. The following process shall apply to property owners who are willing and eligible to participate in the elevation program:
 - Property owner shall complete an application for structure elevation which must be signed by all owners and lien-holders of the property and structure;
 - Property must meet all eligibility criteria (See below);
 - Property owner shall submit proof of ownership and a current Elevation Certificate;
 - The property has clear title and title research is completed;
 - Site inspection is conducted:
 - Phase I HTRW/Asbestos investigation is completed. The property must be certified as “clean” by the appropriate State office before any project funds may be expended. All asbestos must be abated and disposed of properly;
 - A determination of suitability for elevation is made.
 - Elevation Agreement and Residential Structure Elevation Covenant Running With The Land are executed and recorded in the public records of the parish in which the property is located.
 - Elevation of the structure is completed and final inspection is conducted and work is accepted by property owner.
2. Dry flood proofing of eligible non-residential structures (excluding large warehouses and industrial complexes) Dry flood proofing consists of sealing all areas below the flood protection level of a non-residential structure to make it watertight and ensure that floodwaters cannot get inside by making walls, doors, windows and other opening impermeable to water penetration. Walls are coated with sealants, waterproofing compounds, or plastic sheeting is placed around the walls and covered. Back-flow from water and sewer lines prevention mechanisms such as drain plugs, standpipes, grinder pumps, floor drains, and back-up valves can be installed. This measure is viable for appropriate structures if design flood depths are generally less than three feet. Hydrodynamic forces would also be a consideration. For structures with crawlspaces, the only effective way to dry flood proof is to make the first floor impermeable to the passage of floodwater. The following process will apply to participating property owners:
 - Property owner shall complete an application for dry flood proofing which must be signed by all owners and lien-holders of the property and structure);
 - Property owner shall submit proof of ownership and a current Elevation Certificate;
 - Site inspection is conducted;





- Phase I HTRW/Asbestos investigation must be performed concurrently with the verification of application. The property must be certified as “clean” by the appropriate State office before any project funds may be expended. All asbestos must be abated and disposed of properly. Asbestos impacted by flood proofing is removed at project cost, while HTRW impacted by flood proofing must be remediated by the property owner prior to the initiation of the flood proofing work;
 - A determination that the flood proofing as proposed is made.
 - Some form of easement or developmental control agreement shall be required to be executed by the property owner and recorded in the public records of the parish where the property is located to prohibit future alteration of the flood proofing work performed on the structure(s).
 - Each structure that is dry flood proofed must have an approved sanitary disposal system and be in compliance with local and state health codes.
 - Flood proofing work on each structure is completed and final inspection is conducted and work is accepted by property owner.
3. Construction of flood proofing barriers or berms less than 6 feet in height around non-residential structures, primarily industrial complexes and warehouses. These measures are intended to reduce the frequency of flooding but not eliminate floodplain management and flood insurance requirements. Barrier or berms can be constructed of earth, concrete, masonry or steel and placed around a single structure or a contiguous group of structures. It should be noted that some local governments may have adopted floodplain management rules that exceed the minimum requirements of the NFIP, and may limit the ability of certain flood-proofing measures to be constructed if effects of the flood-proofing measure (i.e., small berms, barriers, or floodwalls) create the potential for drainage problems by displacing flood storage, elevating buildings on fill, requiring significant tree removal, etc. The following process will apply to property owners willing to dry-flood proof their structures and/or to have barriers constructed for flood risk reduction.
- Property owner shall complete an application for dry flood proofing which must be signed by all owners and lien-holders of the property and structure);
 - Property owner shall submit proof of ownership and a current Elevation Certificate;
 - Site inspection is conducted;
 - Phase I HTRW/Asbestos investigation must be performed concurrently with the verification of application. The property must be certified as “clean” by the appropriate State office before any project funds may be expended. All asbestos must be abated and disposed of properly. Asbestos impacted by flood proofing is removed at project cost, while HTRW impacted by flood proofing must be remediated by the property owner prior to the initiation of the flood proofing work;
 - A determination of the construction of small barriers for flood risk reduction is made;
 - Some form of easement or developmental control agreement shall be required to be executed by the property owner and recorded in the public records of the parish where the property is located to prohibit future alteration of the barriers constructed to reduce the risk of flooding .
 - Each structure that is dry flood proofed must have an approved sanitary disposal system and be in compliance with local and state health codes.
 - A barrier or berm of a height not to exceed 6 feet may be constructed around the structure(s) and final inspection is conducted and work is accepted by property owner.
4. Floodplain Management Plans. The NFS is required to prepare a Floodplain Management Plan in coordination with USACE to maintain the integrity of the project. The NFS should use best efforts to work with the governing bodies within the three parishes to ensure consistency with local development plans and building code and floodplain regulations.



5. Adoption of more stringent local floodplain regulations. Floodplain regulation and floodplain management are based in the NFIP which requires minimum standards of floodplain management and floodplain regulation for participating communities. Although communities within the SWC study area cannot change the minimum NFIP standards, the NFS can encourage and work with local governments to adopt local standards that achieve higher levels of flood risk reduction, such as:
 - Replace elevation requirements based on the 100-year to the 500-year;
 - Implement a zero rise floodway; and
 - Adopt cumulative damages as the trigger for substantial damage determination.
6. Adoption of more restrictive parish and municipal building codes, land use & zoning regulations, and other developmental controls. Local governments within the floodplain should be encouraged by the NFS to adopt, implement, and enforce stricter building and housing code requirements, land use and zoning regulations and other developmental controls aimed at reducing flood risk and flood damage. Examples include, restrictions on where new development may occur, minimum elevations for habitable first floors, requiring suitable anchorage to prevent flotation of buildings during floods; establishing minimum protection elevations for the first floors of structures; requiring electrical outlets and mechanical equipment to be above regulatory flood levels or be appropriately flood-proofed; restricting the use of materials that deteriorate when wetted; requiring adequate structural designs that can withstand the effects of water pressure and flood velocities; requiring the repair of flood-damaged structures in a manner that will ensure the safety of occupants and prevent blight.

4.1.2 Details of Residential Structure Elevation Program.

Structures with first-floor elevations below the 2025 25-year (4% ACE) water surface elevation (BFE) were eligible to be raised to the year 2075 100-year (1% ACE) BFE. This evaluation was incrementalized by also evaluating the structures within the 25-50 year (4-2% ACE) floodplain and the 50-100 year (2-1% ACE) floodplain. This measure requires lifting the entire structure or the habitable area to the predicted 2075, 100-year base flood elevation unless the required elevation is greater than a maximum of 13 feet above ground level. Velocity and hydrodynamic forces of storm surge and flooding also have to be considered. The most common methods of elevation are: (1) elevating on open foundations such as piers, columns, posts, or piles; (2) elevating on continuous foundation walls; (3) elevating by extending the walls or by moving the living space to an upper floor; and (4) elevating on fill. Eligible structures will be elevated to meet the predicted 2075 100-year base flood elevation, so that the Participation in the Residential Non-Structural Program is primarily voluntary in nature. However, for properties that meet certain criteria, eminent domain authority will be utilized as warranted for acquisition of the land and structure and demolition of the structure. See Appendix “L” entitled “Draft Implementation Plan” for additional details on the nonstructural plan and methods of implementation.

4.1.2.1 Involuntary Participation.

Structures that meet criteria established by the program for involuntary participation must be elevated or acquired. The following are criteria that will be used to determine structure inclusion in the Involuntary Program:

1. The structure is designated a “Severe Repetitive Loss” property in accordance with FEMA criteria (i.e. at least 4 NFIP payouts including building and contents of over \$5,000 each payout with a cumulative payout total of over \$20,000 OR is a residential property for which at least 2 separate claims payments (building only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. For both of the above, at least 2 of the claims must have occurred within any 10-year period and must be greater than 10 days apart. Currently there are:
 - a. 358 residential properties meet the severe repetitive loss criteria.
 - b. 7 commercial properties meet the severe repetitive loss criteria.



- c. 1 warehouse meets the severe repetitive loss criteria.
2. The structure is located in a Regulatory Floodway as established by FEMA. A "Regulatory Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. There are 28 properties that currently meet the regulatory floodway location criteria.
3. The structure constitutes a threat or danger to public safety in that the un-remediated condition of the structure ("At-risk Structure") poses a substantial and certain risk of harm, death, injury or property damage if the structure is subjected to the forces, conditions, and risks typically associated with hurricanes and tropical storms and storm surge flooding. At-risk Structure that may warrant condemnation include structures located in high hazard and repetitive loss areas, floodways or floodplains and that are at significant risk of collapse or failure if exposed to the impacts of hurricanes, tropical storms and associated storm surge, flooding, wave action, winds and erosion. At-risk structures may include structures that are in a dilapidated, unsafe, and uninhabitable condition including but not limited to, structures that have severely cracked, collapsed or unsound foundations; structures with visible damage to or cracking in load bearing and masonry walls; structures with corroded, distressed, or defective steel or wood framings; structures with significant water and/or insect damage; structures with significant roof damage; structures with other structural defects that render it unsuitable for elevation; structures that have substantial damage such that the cost of restoring the structure to its before-damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.

Some or all of these criteria may be modified or eliminated and additional criteria may be added as the Implementation Plan is finalized. If a property owner owns a structure that is included in the Involuntary Program, the Non-Federal Sponsor will use its eminent domain authority to acquire the property and relocate the occupant. Landowners and tenants of structures that are identified as Involuntary Program participants may be eligible for certain benefits in accordance with Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs of 1970, Public Law 91-646, 84 Stat. 1894 ([42 U.S.C. 4601](#)), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of Public Law 100-17, 101 Stat. 246-256; 49 Code of Federal Regulations 24; and HUD Handbook 1378.

4.1.2.2 Voluntary Participation.

Residential structures that are eligible for elevation (and willing property owners) must meet the following eligibility criteria:

1. The property owner is willing to participate in the nonstructural program;
2. The structure is in a safe, decent, and sanitary condition and is otherwise suitable for human habitation;
3. The property has clear title;
4. The structure can be elevated to meet the required base flood elevation so that the habitable floors are raised to levels which will protect the residential structures from storm surge flooding to reduce future losses from the likelihood of the 100-Year Flood Event to the extent practicable. However, in no event will a structure be raised greater than 13 ft above the ground level;
5. The structure and/or land is not contaminated with hazardous, toxic, or radioactive waste or materials;
6. The property owner is willing to execute a Flood Proofing Agreement and a Residential Structure Elevation Covenant Running with the Land;
7. Based on a visual assessment, the structure does not have signs of significant structural defects, distress, or failure (i.e., no evidence of extensive corrosion of steel framing or concrete; no substantial water or insect damage to wood framing or framing that is in obvious need of major repair or



- replacement; no major settlement, cracking, buckling, or collapse of the foundation; no critical damage to load bearing or masonry walls; no major unrepaired roof leaks, etc.);
8. The property owner does not owe taxes or other debts to any state or local governmental entity or to the Federal government;
 9. The property is located in a community/parish that participates in the National Flood Insurance Program and the property owner has a current Elevation Certificate;
 10. The property owner has not previously received any disaster assistance for the elevation of the structure;
 11. The structure complies with the building code and floodplain management codes under which the structure was originally permitted;
 12. The property owner is willing to expend costs that may be necessary in connection with the elevation of the structure which are not eligible costs that are covered by the program;
 13. There are no special considerations or unique circumstances which prohibit elevation.

Note: Tenants who reside in structures being elevated may be eligible for certain benefits in accordance with Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs of 1970, Public Law 91-646, 84 Stat. 1894 ([42 U.S.C. 4601](#)), as amended by the Surface Transportation and Uniform Relocation Assistance Act of 1987, Title IV of Public Law 100-17, 101 Stat. 246-256; 49 Code of Federal Regulations 24; and HUD Handbook 1378.

4.1.3 Hydrologic and Economic Evaluation of the new NED TSP (Modified Plan 8)

Hydrologic and economic models were run to determine the inundation effects of storms on residential, commercial, and industrial properties. Hydrologic modeling provided the existing and future hydrologic conditions needed to assess storm surge-related damages. The modeling identified 90 hydrologic reaches which are characterized by unique relationships between storm surge elevations and frequency. (Figure 4-1) An inventory of structure values, types, and first floor elevations was compiled for all structures in the 90 reaches which identified approximately 52,000 structures. Approximately 49,321 structures are located within the 100-year (1% ACE) floodplain and the results of storm surge modeling, a flood damage analysis model was used to estimate economic damages under the “No-Action” alternative and the potential benefits resulting from the implementation of nonstructural measures. The TSP (Plan 7) contained in the December 2013 draft report recommended nonstructural measures for residential and non-residential structures in the 100-year (1% ACE) floodplain within 11 justified reaches.

The NED TSP (Modified Plan 8) has been substantially revised using the 2025 conditions as the base flood criteria instead of 2075 conditions and properties in the 0-25-year (0-4% ACE) floodplain. The new NED TSP provides for greater net benefits and addresses the structures in most immediate need of flood damage reduction. The economic evaluation employed several assumptions regarding the nonstructural action to be taken for any given structure. Residential structures with first-floor elevations below the 2025 25-year (4% ACE) water surface elevation (BFE) were eligible to be raised to the year 2075 100-year (1% ACE) BFE. This evaluation was incrementalized by also evaluating the structures within the 25-50 year (4-2% ACE) floodplain and the 50-100 year (2-1% ACE) floodplain. Project costs and benefits were calculated on the basis of voluntary participation in the nonstructural plan unless certain criteria were met for a given structure. However, should participation be less than 100%, then both benefits and costs are expected to decline in similar proportion such that the benefit/cost ratio would remain unchanged for this plan. In addition, due to the lack of any economically justified structural alternatives there are no viable options to achieve greater positive net benefits.



Figure 4-1: Hydrologic reaches in the study area.

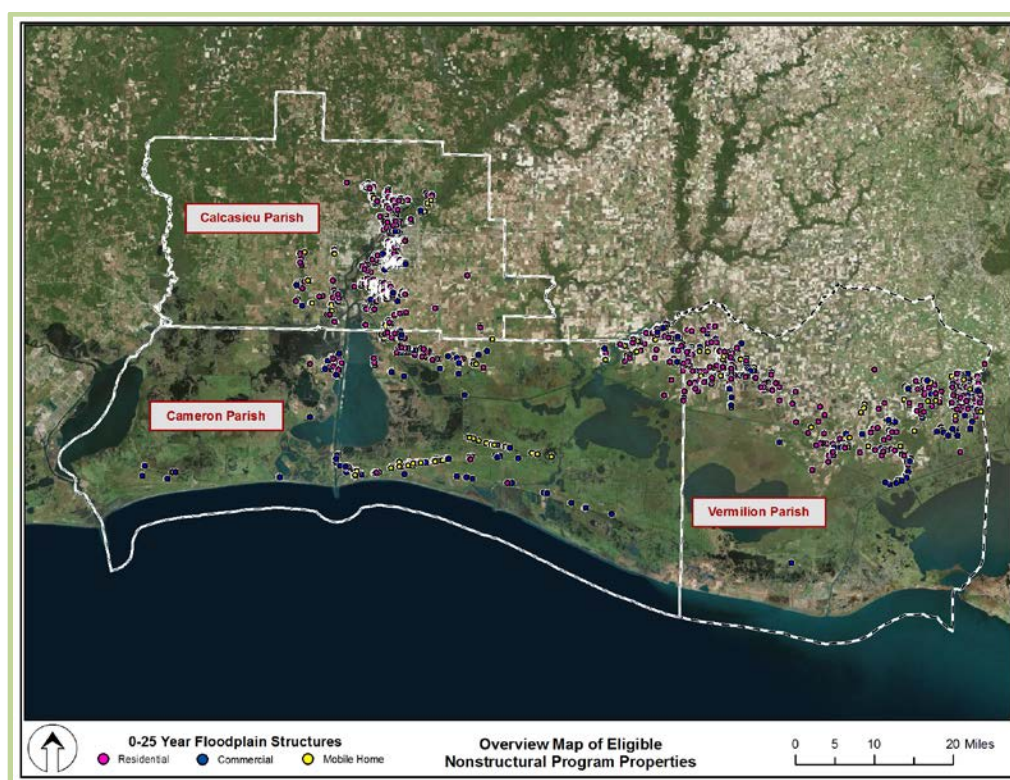


Figure 4-2: Eligible structures in the 0-25-year floodplain.

The expected annual benefits for addressing all the structures within the 0-25 year (0-4% ACE) floodplain are approximately \$266 million. The total cost for implementing the nonstructural alternative is slightly over \$824 million and the corresponding average annual cost is approximately \$34.3 million. USACE will continue to



refine the NED TSP analyses relating to environmental justice and community cohesion, and the requirements of Executive Order 12898 will be fully complied with and incorporated.

4.1.4 NED Mitigation

Since the application of all non-structural measures involve existing developed properties there is a low expected impact to wetland habitats as a result of the implementation of a nonstructural program and every attempt would be made to avoid wetland habitats. Therefore, mitigation for unavoidable impacts from the NED plan implementation is not anticipated to be necessary.

4.1.5 NED Adaptive Management and Monitoring

Mitigation is not anticipated to be necessary for the NED TSP and as a result adaptive management will not be necessary.

4.1.6 NED Operation, Maintenance, Repair, Rehabilitation and Replacement

The NFS is required to prepare a Floodplain Management Plan in coordination with USACE to maintain the integrity of the USACE Project. In addition, the NFS should be required to work with the applicable local governments to help them adopt local standards that achieve higher levels of flood risk reduction, such as replace elevation requirements based on the 100-year to the 500-year and implementing a zero rise floodway; and adopting cumulative damages as the trigger for substantial damage determination. Further, the NFS should use best efforts to work with the governing bodies within the three parishes to ensure consistency with local development plans and regulations. Guidelines developed by the USACE Nonstructural Flood Proofing Committee indicate that the NFS is responsible for working with the local governmental entities that are charged with enforcement of applicable building, housing, and other codes to ensure that the flood proofed structure is maintained in a condition that is consistent with the purposes and intent of the NED plan and the integrity of the nonstructural program. The structure owner is responsible for maintaining the structural integrity of building upon final inspection and acceptance of the flood proofed structure.

4.1.7 NED Risk and Uncertainty Analysis

Risk and uncertainty are intrinsic in water resources planning and design. This section describes various categories of risk and uncertainty pertinent to the study. Risk and uncertainty will be further considered on the selected alternative during feasibility-level design and analysis.

Environmental Factors

Relative Sea Level Rise (RSLR): There is uncertainty about how much sea level change would occur in the region. An assessment of RSLR was included in plan formulation. The evaluation of RSLR is documented in the Engineering Report and will be refined during feasibility design. Calculations based on EC 1165-2-212 determined that the low, intermediate and high rates of RSLR at 2075 will be 1.47 ft, 2.04 ft, and 3.86 ft higher than current levels respectively (Table 4-1). The intermediate rate was used for models and assessing alternatives.

Table 4-1: Sea level and relative sea level rise values.

Year and SLR Scenario	SLR (NAVD88 ft)	RSLR (NAVD88 ft)
2025 Low SLR	0.16	0.78
2025 Intermediate SLR	0.22	0.84
2025 High SLR	0.40	1.02
2075 Low SLR	0.85	1.47
2075 Intermediate SLR	1.42	2.04
2075 High SLR	3.24	3.86



RSLR could impact the benefits achieved by the TSP. Because the NED Plan was developed using the intermediate RSLR rate, the TSP would provide fewer benefits than anticipated should the low RSLR rate result and more benefits with the high RSLR rate. With the high RSLR rate, the nonstructural component would be less effective because structures would have to be raised to a height that would increase their risk from wind damage during a storm.

Storms: Uncertainty with regard to the size and frequency of storms and meteorological events, such as El Nino and La Nina, cannot be predicted over a set period of time. The storm record is constantly being updated and a large storm such as Hurricane Rita or a slow moving storm such as Hurricane Isaac can alter the expected return period for other storms. To reduce the uncertainties of storm events, storms with varying degrees of size, intensity, and path were included in the modeling. By using a long-term record of different storm scenarios, the effects of such storms were incorporated into the modeling to reduce the uncertainty in the determination of project benefits (see Engineering Report, Appendix B).

If pronounced effects regarding RLSR or climate non-stationary occur, the nonstructural program can be adaptive and make adjustments to design criteria and structures potentially recommended for inclusion in the program. This is achievable because the implementation of a broad regional nonstructural program, as well as evidence of a greater-than-predicted rate of RSLR and/or coastal storm damages, would be distributed over time. If these effects occur, the floodplain definitions would change, design criteria would be adapted, more structures would be identified as at risk, and meet the justification criteria for the nonstructural program. Conversely, some structures that were already elevated would return to the risk pool earlier than forecast. However, this would also be a time distributed effect and identification of greater than expected RSLR would correspond to immediate or total loss of forecast benefits.

Modeling Factors

ADCIRC and HEC-RAS models appear to provide a specific response on the NED TSP in any given scenario; however it is only a representative point of reference in a complex system. While the analysis is enhanced by the models, application of the models can introduce error and uncertainty. Calibration and verification efforts are employed so that the models more closely replicate observed changes or at least provide insight into the limitations of the model. Models are limited by basic, underlying assumptions and uncertainties. Some of the simplifying assumptions include the model parameters. Another uncertainty is that a limited number of storm scenarios are modeled. It is assumed that various storm scenarios over a number of years will represent a much higher indicator of the ability for nonstructural solutions to appropriately avoid or minimize surge related damages from major storm events. Models use available historic data to extrapolate future storm conditions and frequency. The size and frequency of storms included are based on statistical analysis but do not account for meteorological changes that can increase or decrease storms over a period of several years. The models do not account for the potential of increased frequency and intensity of storms due to climate change.

Economic Factors

There is an economic risk in under or overestimating the future benefits associated with the project alternatives. The with-project damages and overall benefits associated with the alternatives were estimated based on the existing and future without-project damages. For structural features, this could potentially result in the feature not being economically justified or preliminary estimates of the benefit/cost ratios being overstated. However, no structural features are part of the TSP.

The Hydrologic Engineering Center Flood Damage Analysis (HEC-FDA) Version 1.2.5b was used to calculate the damages for the without project existing and future conditions. Economic and engineering inputs were used to calculate damages for without project existing conditions (2012), the project base year (2025), and the end of the period of analysis (2075). In an evaluation performed on the nonstructural plan, the most significant factor was the use of the base year risk condition rather than the end year condition to determine the eligibility of structures for the application of nonstructural measures. Increases in relative stage elevation for various base year risk conditions result in greater numbers of structures (incurring damages that



exceed remediation costs) introduced into the risk pool, both spatially and for any given event probability. For the study end year risk conditions, increased stage conditions translate into an increase in structures in the risk pool. However, the additional damages incurred by those structures over the period of analysis are nominal in comparison to their remediation costs given that a change in the stage associated with the .01 ACE is, on average, only 2 ft. The evaluation of residual risk associated with structures that are not in the 100-year floodplain under 2025 hydrologic conditions, but are under 2075 conditions, is expanded upon in Appendix D – Economics.

For the NED TSP, the PDT assumed a 100% participation rate which is intended to serve as an upper limit to the Federal investment in nonstructural measures. It is recognized that likely participation in any nonstructural risk reduction program would not reach 100%. Reasons of locality preference, community-wide participation trends, economic constraints for willing participants, risk tolerance, ability to affordably mitigate or self mitigate risks, structural eligibility, issues related to insurability, and the nature of future storm events are some of the factors that may influence participation. Conversely, the nonstructural plan should highlight the benefits of participation such as long-term flood risk reduction and damages, and beneficial impacts to market value and insurability. If the NED Plan is funded on the basis of 100% participation, but the actual participation is less, the uncommitted funds would not be expended. It is expected that a sensitivity analysis of the BCRs for varying levels of participation would result in no significant change. Non-participating property owners would be randomly selected to reduce the participation rate, the effect of which would be to reduce benefits and costs, on average, by constant degrees. As a result, net benefits for the NED TSP remain positive and the BCR unchanged.

The uncertainty surrounding each of the economic and engineering variables and a probability distribution was entered into the model to quantify the uncertainty associated with the key economic variables. The number of years that stages were recorded at a given gage was entered to quantify the hydrologic uncertainty or error surrounding the stage-probability relationships. The nonstructural costs were estimated based on the number of structures within the 25-year (4% ACE) floodplain in the 2025 base year. Relative sea level rise prior to the base year significantly effects the determination of the number of structures that would be eligible for application of nonstructural measures. This means that uncertainty in the projected rate of future RSLR translates directly to uncertainty as to how many structures would be included in the TSP.

The TSP reduces flood risks for only those structures in the 0-25-year floodplain, which total 4,952. An additional 10,715 structures are present in the 25-100 year (4% - 1% ACE) floodplain within the study area. However, implementation of the NED TSP reduces damages within the floodplain by 86 percent, suggesting a highly effective plan and a significant reduction in residual risk. Most damages occurring within the 100-year floodplain occur in the 0-25-year floodplain increment, thereby accounting for most benefits. From the standpoint of public safety, the NED Plan is not expected to have a large and widespread impact. For those residents that may participate in elevating their residences, the probability is that their degree of risk aversion is not expected to change as a result of this nonstructural measure, and evacuation behavior would be the same under both without- and with-project conditions.

4.1.8 NED Real Estate Requirements

Costs for the nonstructural features were included as construction costs and not as separable real estate acquisition costs. In addition, a Chart of Accounts which captures the administrative costs associated with the nonstructural plan implementation is included in the Real Estate Plan (Appendix E). A maximum of 4,952 structures are eligible for inclusion in the nonstructural program. Additional discussion of the real estate requirements for NED program features can be found in the Real Estate Plan (Appendix E). The NFS would be responsible for acquiring all necessary real estate interests including the use of eminent domain when necessary under established criteria.

4.1.9 Summary of Environmental Consequences of NED Plan

The NED plan avoids and minimizes negative environmental impacts to the maximum extent practicable or would seek to mitigate impacts to significant resources. The initial evaluation indicates that there is low



likelihood of impacts requiring mitigation. This evaluation will be refined as each eligible structure is evaluated for a particular nonstructural measure. Changes between the initial TSP and the revised TSP are described in the table below.

Table 4-2: NED Feature Costs and Benefits.

Plan	Recommendation	1 st Draft Report	2 nd Final Report	Difference
NED	Eligibility	11 Justified Reaches	Justified Floodplains	---
	Eligible Floodplain	2075 100-Year	2025 0-25-Year	---
	Eligible Structures	3,915	4,952	+1,037
	Benefit/Cost Ratio	1.25:1	7.74:1	+6.49
	First Construction Cost	\$388,000,000	\$824,000,000	+\$436,000,000

4.2 National Ecosystem Restoration (NER) Plan

4.2.1 Description of the NER TSP (Plan CM-4)

The NER TSP (Alternative CM-4) consists of a broad range of ecosystem restoration measures including marsh restoration features (which involves hydraulic dredging and placing of sediments), a hydrology and salinity control structure, shoreline protection/stabilization features, and chenier reforestation. The Calcasieu Ship Channel Salinity Barrier Navigation Study is also recommended as an additional long-range study feature to adequately account for potential environmental benefits, navigation impacts, and engineering. The NER TSP features comprise an integrated comprehensive restoration plan that would have synergy with other ecosystem restoration projects and would facilitate hydrologic and geomorphic stability and resilience. Each restoration feature, with its associated benefits and estimated costs are identified in Table 4-3. A full listing of each feature in the NER TSP was presented Tables 2-18a-d in Chapter 2.

The restoration features included in the TSP (together with their benefits and impacts) are constructible and no longer programmatic prior to implementation. The construction costs and benefits for all NER features in the TSP are depicted in Table 4-3.

Table 4-3: NER Feature Construction Costs and Benefits.

Category	ID	Description	Initial Construct-ion Cost	Pre-liminary RE Cost	Net Acres	Net AAHUs
Marsh Restoration	47a1	Marsh restoration using dredged material south of LA-82.	\$32,698,038	\$720,000	895	272
	47a2	Marsh restoration using dredged material south of LA-82.	\$73,725,657	\$1,006,000	1,218	381
	47c1	Marsh restoration using dredged material south of LA-82.	\$70,993,097	\$925,000	1,135	353
	127c3	Marsh restoration at Pecan Island, west of the Freshwater Bayou Canal.	\$84,352,747	\$658,000	735	241
	306a1	Rainey marsh restoration at Christian Marsh, east of the Freshwater Bayou Canal.	\$97,159,850	\$1,348,000	743	645
Shoreline Protection/Stabilization	6b1	Gulf shore protection/stabilization from Calcasieu River to Freshwater Bayou.	\$104,780,685	\$0 (Public Lands)	2,140	625
	6b2	Gulf shore protection/stabilization from Calcasieu River to Freshwater Bayou.	\$76,571,740	\$0 (Public Lands)	1,583	466
	6b3	Gulf shore protection/stabilization from Calcasieu River to Freshwater	\$68,096,051	\$0 (Public Lands)	1,098	312



		Bayou.				
	16b	Fortify spoil banks of Freshwater Bayou.	\$67,773,307	\$0 (Public Lands)	662	156
Chenier Re-forestation	CR	13 separate chenier locations would be replanted.	\$49,523	\$747,000	282	96.3
Hydrologic/ Salinity Control	74a*	Cameron-Creole Spillway.	\$4,328,000	\$0 (Public Lands)	(56)	267
Marsh Restoration	3a1	Beneficial use of dredged material from the Calcasieu Ship Channel.	\$66,576,486	\$430,000	454	191
	3c1	Beneficial use of dredged material from the Calcasieu Ship Channel.	\$117,802,030	\$368,000 (Some Public Lands)	1,451	654
	124c	Marsh restoration at Mud Lake.	\$65,163,555	\$1,871,000	1,915	740
	124d	Marsh restoration at Mud Lake. renourishment cycle.	\$13,826,622	\$434,000	168	4
Shoreline Protection/ Stabilization	5a	Holly Beach Shoreline Stabilization Breakwaters.	\$43,644,018	\$0 (Public Lands)	26	56
Chenier Re-forestation	CR	22 separate chenier locations would be replanted.	\$196,778	\$2,854,000	1,132	442
TOTALS			\$987,738,000	\$11,361,000	15,581	5,901

* 74a requires additional modeling and study to fully understand the impacts of the feature.

The full benefits for all feature types recommended in the TSP are presented below.

Table 4-4: NER Plan Features.

Restoration Measure	Number of Features	Net Acres	AAHUs	Parishes	Initial Cost
Marsh Restoration	9	8,714	3,481	Calcasieu, Cameron, Vermilion	\$572,300,000
Hydrology/Salinity Control	1	(56)	267	Cameron	\$4,330,000
Shoreline Protection/Stabilization	5	5,509	1,615	Cameron, Vermilion	\$256,085,000
Chenier Reforestation	35	1,414	538	Cameron, Vermilion	\$250,000
Total	51*	15,581	5,901	---	~\$987,738,000

**The Calcasieu Ship Channel Salinity Barrier is recommended for additional study*

Each of the marsh restoration features involves delivering sediments to open water or eroding marsh areas (minimum of 100 acres) that have water levels of less than two feet and that have been optimized to preserve or restore critical geomorphologic features to create new vegetated wetlands. The marsh restoration locations include: (a) three areas on the south side of LA-82 approximately 4.5 miles west of Grand Chenier; (b) Pecan Island west of the Freshwater Bayou Canal approximately 5 miles north of the Freshwater Bayou locks; (c) Christian Marsh located east of Freshwater Bayou Canal and approximately 5 miles north of Freshwater Bayou locks; (d) southern shoreline of GIWW west of Calcasieu Ship Channel near Black Lake; (e) eastern rim of Calcasieu Lake within the Cameron-Creole Watershed; (f) east of Mud Lake and north of Highway 82; (g) Mud Lake west of Calcasieu Ship Channel adjacent to southern rim of West Cove. Dredged material



sources would be the Calcasieu Ship Channel and the Gulf of Mexico. All marsh restoration locations would have one future re-nourishment cycle. A 30-year renourishment interval was chosen as the best balance between cost, net acres, and AAHUs. The costs are included in the OMRR&R estimates and would be the responsibility of the Non-Federal Sponsor. Adaptive management techniques would be used to adjust the projected interval, either sooner or later than the 30-years, based on actual loss rates after construction. (See Appendix A for Adaptive Management and Monitoring)

The hydrologic and salinity control feature consists of the Cameron-Creole Spillway structure south of Lambert Bayou, would serve as a drainage manifold and the outfall channel into Calcasieu Lake, and would be rock-lined for scour protection and built to +2 feet. This feature is designed to regulate the flow of water in certain areas, to inhibit salinity intrusion above a certain threshold, and to increase wetland productivity. The five shoreline protection/stabilization features, which span approximately 252,000 linear feet, would be used to reduce erosion of canal banks and shorelines in critical areas in order to protect adjacent wetlands and critical geomorphic features.

Chenier restoration consists of replanting of 435 seedlings per acre at 10' x 10' spacing, in 35 chenier locations on over 1,400 acres in Cameron and Vermilion parishes. Areas eligible for chenier restoration consist of areas greater than five feet in elevation and with low shoreline erosion rates, provided the existing canopy coverage is less than 50% unless nearby development would prevent achieving study objectives.

Figures 4-3a and 4-3b depict the NER TSP features. Figure 4-4 depicts planned restoration activities in the study area through various programs.

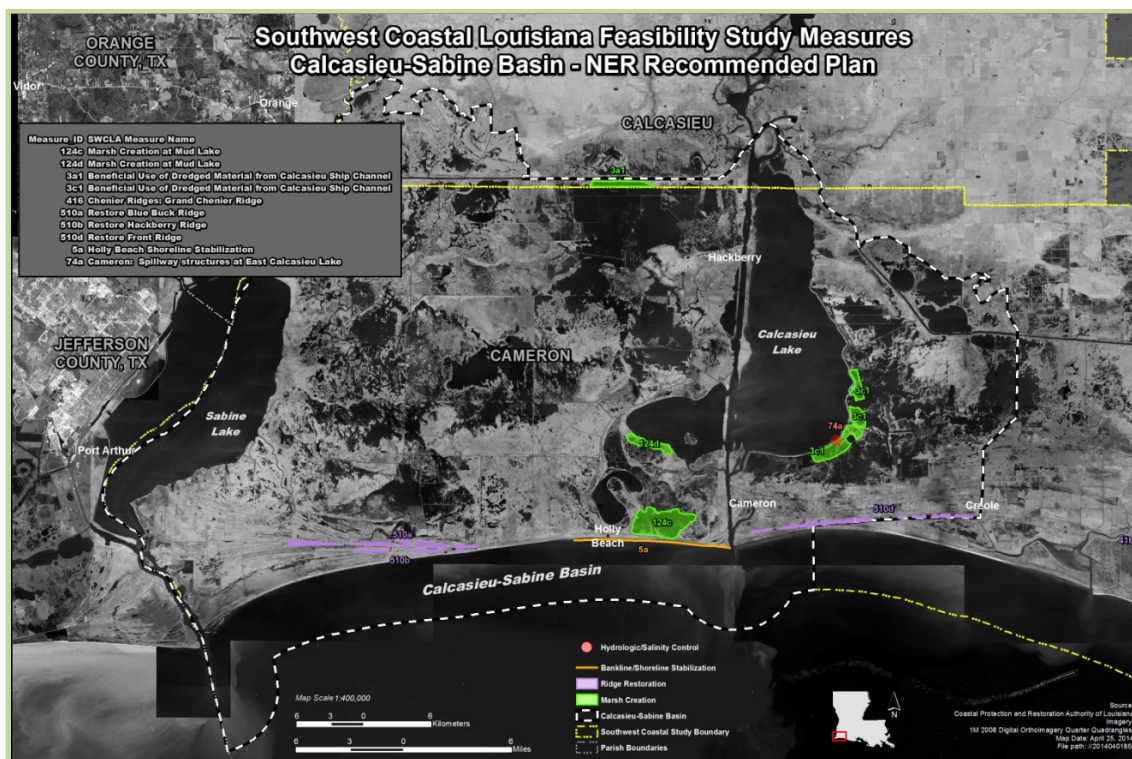


Figure 4-3a: NER TSP features (Calcasieu-Sabine Basin).

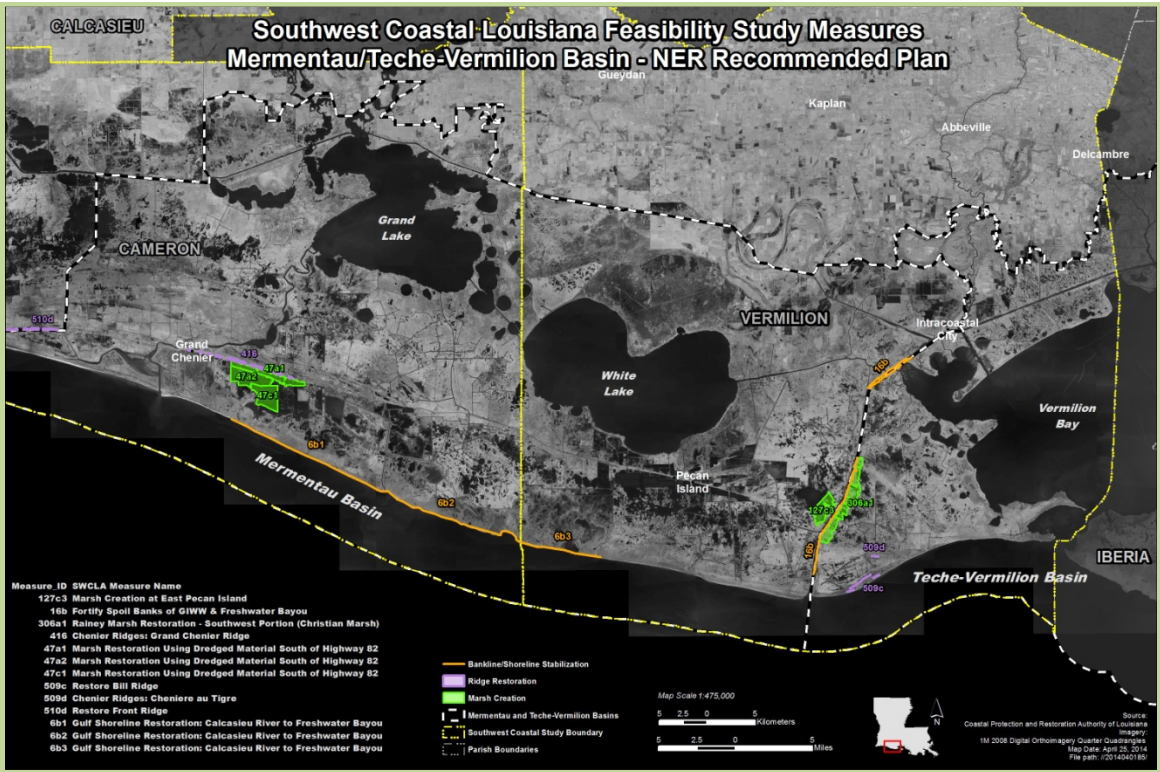


Figure 4-3b: NER TSP features (Mermentau/Teche-Vermilion Basin).

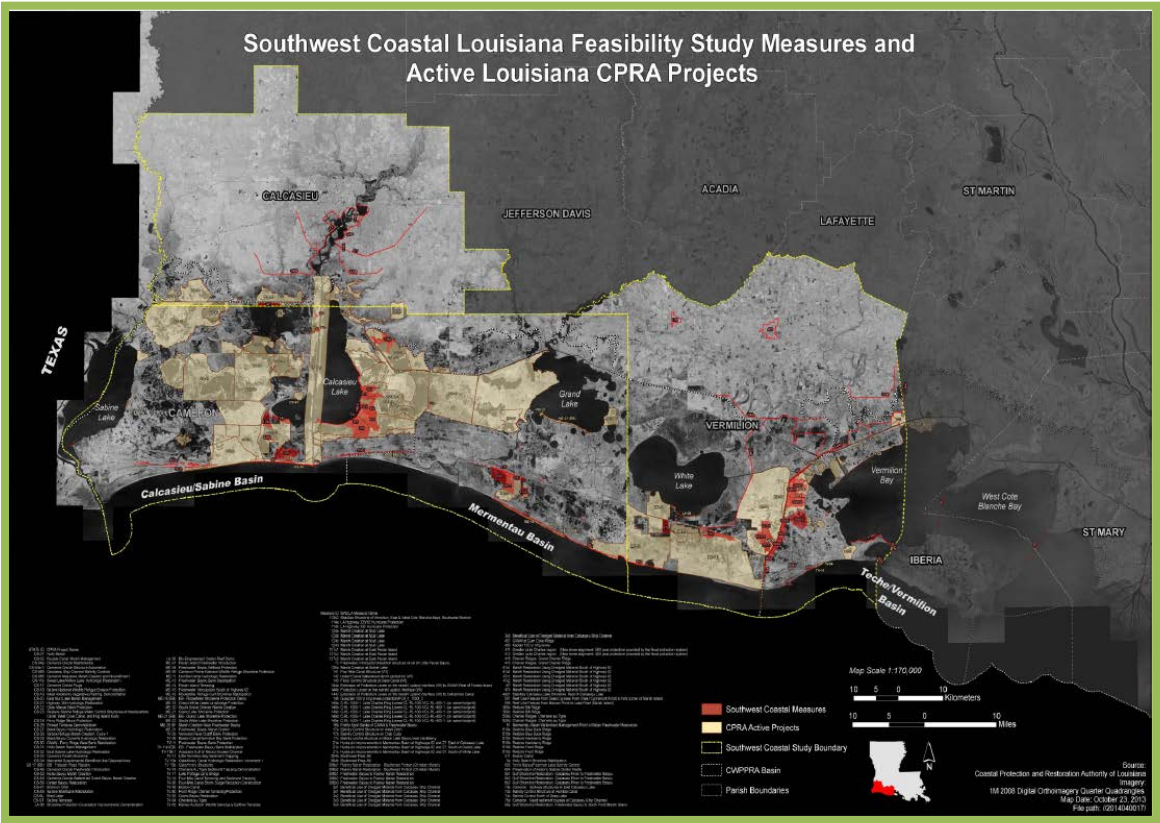


Figure 4-4: Ecosystem restoration activities in the study area.



4.2.2 Adaptive Management and Monitoring (AM&M)

The AM&M plan describes the monitoring to be used to evaluate the progress made towards meeting project goals and objectives, and is contained in Appendix A. The plan describes the organizational structure for the AM&M process, the Conceptual Ecological Model, key uncertainties, and provides potential Adaptive Management/contingency actions that may be needed to ensure success. The level of detail in the AM&M plan is based on currently available data and will be refined further in subsequent design phases. For cost estimating purposes, 3% of the total project costs are projected for AM&M costs based on the monitoring needed to measure ecological success and the identified risks and uncertainties.

4.2.3 NER Plan Operation, Maintenance, Repair, Rehabilitation and Replacement

OMRR&R for the NER TSP consists of marsh renourishment through the periodic addition of dredged sediment to maintain wetland elevations, future lifts and additions of material for rock and/or rip-rap features, and maintenance, repair and replacement of the hydrologic/salinity control features. The estimated annual OMRR&R cost for the NER features is \$6,186,000, which will be refined during the design phase. The NFS shall commence OMRR&R once USACE issues a notice of construction completion together with the OMRR&R Manual to the NFS.

4.2.4 Risk and Uncertainty Analysis

Risk and uncertainty are intrinsic factors in water resource plans. This section describes risk and uncertainty categories pertinent to the study.

Environmental Factors

Relative Sea Level Rise: An assessment of RSLR was included in plan formulation and alternatives analysis; however there is uncertainty about how much sea level change may occur. Higher than estimated RSLR could cause salt water intrusion further into the Calcasieu and Sabine estuaries, causing significant changes to lower salinity wetlands. An assessment of RSLR was included in plan formulation and alternatives analysis. Higher RSLR would also result in higher water levels which would increase erosion rates and increase loss of wetlands. However, improved cohesiveness across the system should also result in a broader near-term increase in ecosystem resilience, not just for those restored wetlands, even in the face of a higher RSLR. Values for the RSLR rates were previously presented in Table 4-1. A graphic of the projected rates is also presented in Figure 1-7 in Chapter 1. RSLR could impact the benefits of the NER TSP. Because the features were developed using the intermediate RSLR rate, the TSP would provide more benefits than anticipated if the lower RSLR rate occurs and less benefits if the higher RSLR rate occurs. With the high rate the marsh restoration and shoreline protection/stabilization features would be less effective because they could be overwhelmed by water levels and this could increase their vulnerability. For the NER H&S feature, any increase in RSLR beyond what was analyzed could mean decreased effectiveness in controlling salinities because it is possible the structure could be flanked by elevated water surfaces across the low-lying topography. There is an upper limit of the range of water levels that can be controlled by the H&S structure since marsh elevations are so low. This is a risk to the effectiveness of the NER TSP but this situation would also imply that landscape-level inundation would be so great that engineered or designed features could no longer control how, when, or where water moves throughout the study area.

Storms: Risks associated with the TSP relate to possible extreme weather events. Uncertainty about the size or frequency of storms and climate events, such as El Nino cannot be predicted over a set period of time. Storm events can cause significant damage to wetlands. Intact habitats are more resilient against the effects of storm surge and associated flooding, salinity spikes, and tidal scour, though some storm damages may be unavoidable.

4.2.5 Real Estate Requirements

The Real Estate Plan (Appendix E) describes real estate requirements and costs for the NER project features. Additional identification of all of the real property interests and estates required for implementation of the



NER TSP would be considered during the future implementation efforts. Locations of the TSP alternatives were used to prepare preliminary cost estimates, but detailed information on right-of-way required for access, borrow, staging, and other project features has not yet been developed. The Real Estate Plan and cost estimates will be refined during the design phase. The NER Plan requires an estimated 25,619 acres of real estate acquisition from 158 landowners. Fact sheet maps for NER features have been prepared to show required project rights-of-way, including access, borrow, staging, and other project features (see Appendix K for more information).

The majority of the NER features are located on privately owned land and would require the acquisition of a standard Fee, Excluding Minerals (With Restriction of Use of Surface) estate. A Request to Deviate from Fee Acquisition and Request for Approval of a Non-Standard Estate will be prepared and submitted as an independent document for this project. For the purposes of this report, it is stated that fee simple title would be acquired for the NER project features. Project features on Federal lands would require a Special Use Permit from the USFWS. A standard Temporary Work Area Easement would be acquired for staging areas. A standard perpetual Utility and/or Pipeline Easement would be acquired for transport of dredged materials. A Perpetual Access Easement (Non-Material Deviation from Standard Estate) would be acquired over privately owned access areas. More detailed information regarding real estate acquisition for the NER TSP is found in Appendix E.

4.2.6 Summary of Environmental Consequences of NER Plan

Restoration and protection/stabilization features for the NER plan are designed to be self-mitigating and would not require compensation. Table 4-5 depicts the changes between the initial NER TSP contained in the December 2013 Initial draft report and the revised NER TSP contained herein.

Table 4-5: NER changes between the 1st TSP and the 2nd TSP.

Plan	Recommendation	1 st Draft Report (12/2013)	2 nd Draft Report (3/2015)	Difference
NER	Marsh Features (Acres/AAHUs)	9 (8,714/N/A)	9 (8,714/3,481)	N/A
	Hydrology/Salinity Control Features (Acres/AAHUs)	2 (6,092/N/A)	1 (-56/267)	-1
	Shoreline Protection/Stabilization Features (Acres/AAHUs)	5 (5,509/N/A)	5 (5,509/1,615)	N/A
	Oyster Reef Preservation Features (Acres/AAHUs)	1 (N/A/N/A)	Removed	Feature removed
	Chenier Features (Acres/AAHUs)	22 (1,413/N/A)	35 (1,414/538)	+13 (sites added)
	First Construction Cost	\$992,000,000	\$987,738,000	-\$4,262,000
	Fully Funded Cost	\$1,128,386,000	\$1,197,757,000	+\$69,371,000

**The Calcasieu Ship Channel Salinity Barrier is recommended for additional study. Hydrology/Salinity Control Feature requires additional modeling and study to understand the benefits/impacts of the feature. Additional NEPA would be completed prior to implementation*

4.2.7 Significance of Benefits for the NER Plan

The NER plan would benefit a total of 15,581 net acres (Table 4-3) and be synergistic with the existing and authorized restoration projects identified in Figure 4-3. The significance of benefits for the NER Plan is substantially greater than just the net acres restored and/or protected. Compared to the “No Action Alternative”, implementing the marsh restoration, chenier reforestation, shoreline protection/stabilization, and hydro/salinity control feature of the NER plan would result in positive effects on resources which are institutionally, technically, and publicly significant. Restoration of the global, national, state, and locally significant resources within the area would contribute to the unique services, functions and values provided by these resources.



Coastal Louisiana is a unique ecosystem which is losing land at an estimated rate between 20 and 50 square miles a year (USGS 1995, USGS 2011). Approximately 1,900 square miles of coastal habitat was lost between 1932 and 2010 (USGS 2011). Approximately 104,171 acres of marsh is projected to be lost by 2075, 2083 acres annually. Restoring fresh, intermediate, brackish, and saline estuarine marshes within a framework of hydro/salinity control, marsh restoration, and shoreline protection/stabilization features would interact to provide benefits greater than the sum of their parts. Together these features would help regulate fresh and saltwater flows, protecting against substrate erosion and provide important transitional estuarine habitat between upland and marine environments.

Implementation of the NER Plan would reduce habitat degradation and land loss, along with reestablishing replenishing processes contributing to plant production and vertical maintenance necessary for a stable ecosystem. Restoring estuarine marsh habitats for wildlife, finfish, shellfish, and other aquatic organisms would provide habitats used for shelter, nesting, feeding, roosting, cover, nursery, and other life requirements. Threatened and endangered species, such as piping plover, sea turtles, and species of interest such as the brown pelican and bald eagle would benefit from the restoration of scarce important estuarine habitats. The shoreline protection features would restore and protect approximately 341 acres of designated critical habitat for the threatened piping plover and important habitat for the threatened rufa red knot.

There would also be increases in estuarine EFH including: estuarine mud bottoms; marsh ponds, inner marsh and marsh edge; SAV; beach; tidal creeks; and marsh/water interface associated with the restoration of transitional estuarine habitat between upland and marine environments. This would result in restored EFH for federally-managed species such as brown and white shrimp, red drum, Spanish mackerel, King mackerel, and cobia. Increases in available EFH would result in more opportunities for recreational and commercial fisheries. Restoring the rare and imperiled chenier forest would provide stopover habitat for migrating neotropical birds. Benefits of the NER plan would include a decrease in inter- and intra-specific competition between resident and migratory fish and wildlife species for decreasing estuarine resources.

Restoring this unique estuarine ecosystem would not only increase productivity and benefit the ecologic system, but also protect the significant scientific, recreational, aesthetic, historic, and publicly significant features within the area. Restored marsh would provide a natural storm protective buffer and reduce shoreline recession and the movement of unstable sediments. Reforesting the chenier ridges would maintain the uniqueness of this ecosystem, reduce the scarcity of this habitat, as well as contribute to species richness and biodiversity produced by the system. The vegetative communities that would be restored by the NER plan would provide protection against erosion and contribute food and structure for cover, nesting, and nursery habitat for wildlife and fish.

4.3 Implementation Requirements

Preconstruction engineering and design, and construction will follow USACE regulations and standards. Lands, easements, right-of-ways, relocations and borrow/disposal areas (LERRDs) are an NFS obligation (see Appendix E). A preliminary description of the NFS obligations for both the NER and the NED Plans are set forth below; however the items of the NFS's obligations may be refined as the Project is implemented.

4.4 Cost Sharing and Non-Federal Sponsor Responsibilities

The CPRAB is anticipated to be the NFS for the planning, design, construction, operation, maintenance, repair, rehabilitation, and replacement of the project. The cost share for the planning, design, and construction is 65% Federal and 35% non-Federal. Federal implementation of the project is subject to the NFS agreeing to comply with applicable Federal laws and policies.

4.4.1 Cost Apportionment

The OMRR&R costs for the NER TSP are estimated at \$6,186,000, and total estimated interest during construction for NER is \$30,743,000 at 2014 price levels (see Table 4-6). Because implementation of the



nonstructural plan would occur on an individual structure by structure basis with construction occurring within less than one year, there is no interest accruing during construction associated with that plan.

Table 4-6 TSP summary.

	Storm Damage Risk Reduction (NED)	Ecosystem Restoration (NER)	Total
First Cost	\$824,000,000	\$987,738,000	\$1,811,738,000
Average Annual Cost	\$34,342,000	\$48,633,000	\$82,975,000
Average Annual Benefits	\$265,964,000	5,901 (AAHU's)	
Net Benefit	\$231,621,000	15,581 (Net Acres)	
BCR	7.74	N/A	

Table 4-7: Cost apportionment of the TSPs (NED and NER)*.

	Storm Damage Risk Reduction (NED)	Ecosystem Restoration (NER)	Total	Federal	Non-Federal
PED ¹	\$---	\$59,264,000	\$59,264,000	\$38,522,000	\$20,742,000
Construction	\$824,000,000 ⁶	\$987,738,000	\$1,811,738,000	\$1,177,630,000	\$634,108,000
Interest During Construction ²	\$---	\$30,743,000	\$30,743,000	\$19,983,000	\$10,760,000
Lands, Easements, & ROW	\$---	\$11,361,000	\$11,361,000	\$-- ⁵	\$11,361,000
Construction Management ³	\$---	\$79,019,000	\$79,019,000	\$51,362,000	\$27,657,000
Monitoring and Adaptive Management ⁴	\$---	\$29,632,000	\$29,632,000	\$19,261,000	\$10,371,000
Total First Costs[#]	\$824,000,000	\$1,197,757,000	\$2,021,757,000	\$1,314,142,000	\$707,615,000

1 – 6% of construction cost

2 – Federal Discount Rate of 3.375%

3 – 8% of construction cost

4 – 3% of construction cost

5 – Fed cost is administrative for non-Federal sponsor oversight.

6 – Contains a roll-up of PED and construction management costs.

* All table numbers have been rounded to the nearest thousand.

4.4.2 Items of Local Cooperation for the NER TSP:

a. Provide 35 percent of total project costs as further specified below:

1. Provide the non-Federal share of design costs allocated by the Government in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;
2. Provide, during the first year of construction, any additional funds necessary to pay the full non-Federal share of design costs;
3. Provide all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all



relocations; and construct all improvements required on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material all as determined by the Government to be required or to be necessary for the construction, operation, and maintenance of the project;

4. Provide, during construction, any additional funds necessary to make its total contribution equal to 35 percent of total project costs;

b. Not use funds provided by a Federal agency under any other Federal program, to satisfy, in whole or in part, the non-Federal share of the cost of the project unless the Federal agency that provides the funds determines that the funds are authorized to be used to carry out the project;

c. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way required for construction, operation, and maintenance of the project, including those necessary for relocations, the borrowing of materials, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

d. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, including any mitigation features, at no cost to the Federal Government, in a manner compatible with the project's authorized purposes and in accordance with applicable Federal and State laws and regulations and any specific directions prescribed by the Federal Government;

e. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating, maintaining, repairing, rehabilitating, or replacing the project;

f. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, rehabilitation, and replacement of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors;

g. Keep and maintain books, records, documents, or other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, or other evidence are required, to the extent and in such detail as will properly reflect total project costs, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Code of Federal Regulations (CFR) Section 33.20;

h. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5), and Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2213), which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-Federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;

i. Comply with all applicable Federal and State laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army" and all applicable Federal labor standards requirements including, but not limited to, 40 U.S.C. 3141- 3148 and 40 U.S.C. 3701 – 3708 (revising, codifying and enacting without substantial change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a et seq.), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 et seq.), and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c et seq.);



j. Perform, or ensure performance of, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and maintenance of the project. However, for lands that the Federal Government determines to be subject to the navigation servitude, only the Federal Government shall perform such investigations unless the Federal Government provides the non-Federal sponsor with prior specific written direction, in which case the non-Federal sponsor shall perform such investigations in accordance with such written direction;

k. Assume, as between the Federal Government and the non-Federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and maintenance of the project;

l. Agree, as between the Federal Government and the non-Federal sponsor, that the non-Federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA.

m. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) such as any new developments on project lands, easements, and rights-of-way or the addition of facilities which might reduce the outputs produced by the ecosystem restoration features, hinder operation and maintenance of the project, or interfere with the project's proper function;

n. Provide the non-Federal share of that portion of the costs of mitigation and data recovery activities associated with historic preservation, that are in excess of 1 percent of the total amount authorized to be appropriated for the project;

o. Not use project or lands, easements, and rights-of-way required for the project as a wetlands bank or mitigation credit for any other project.

4.4.3 Items of Local Cooperation for the NED TSP:

a. Provide 35 percent of total project costs as further specified below:

1. Provide the non-Federal share of design costs allocated by the Government in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

2. Provide, during the first year of construction, any additional funds necessary to pay the full non-Federal share of design costs;

3. Provide all lands, easements, and rights-of-way, including those required for relocations, the borrowing of material, and the disposal of dredged or excavated material; perform or ensure the performance of all relocations; and construct all improvements required on lands, easements, and rights-of-way to enable the disposal of dredged or excavated material all as determined by the Government to be required or to be necessary for the construction, operation, and maintenance of the project;

4. Provide, during construction, any additional funds necessary to make its total contribution equal to 35 percent of total project costs;



- b. Not use funds provided by a Federal agency under any other Federal program, to satisfy, in whole or in part, the non-Federal share of the cost of the project unless the Federal agency that provides the funds determines that the funds are authorized to be used to carry out the project;
- c. Comply with all applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended (42 U.S.C. 4601-4655), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way required for construction, operation, and maintenance of the project, including those necessary for relocations, the borrowing of materials, or the disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;
- d. For so long as the project remains authorized, operate, maintain, repair, rehabilitate, and replace the project, or functional portions of the project, including any mitigation features, at no cost to the Federal Government, in a manner compatible with the project's authorized purposes and in accordance with applicable Federal and State laws and regulations and any specific directions prescribed by the Federal Government;
- e. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating, maintaining, repairing, rehabilitating, or replacing the project;
- f. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, rehabilitation, and replacement of the project and any betterments, except for damages due to the fault or negligence of the United States or its contractors;
- g. Keep and maintain books, records, documents, or other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, or other evidence are required, to the extent and in such detail as will properly reflect total project costs, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Code of Federal Regulations (CFR) Section 33.20;
- h. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended (42 U.S.C. 1962d-5), and Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended (33 U.S.C. 2213), which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-Federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;
- i. Comply with all applicable Federal and State laws and regulations, including, but not limited to: Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d) and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army" and all applicable Federal labor standards requirements including, but not limited to, 40 U.S.C. 3141- 3148 and 40 U.S.C. 3701 – 3708 (revising, codifying and enacting without substantial change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a et seq.), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 et seq.), and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c et seq.);
- j. Perform, or ensure performance of, any investigations for hazardous substances that are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 96-510, as amended (42 U.S.C. 9601-9675), that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and maintenance of the project.



However, for lands that the Federal Government determines to be subject to the navigation servitude, only the Federal Government shall perform such investigations unless the Federal Government provides the non-Federal sponsor with prior specific written direction, in which case the non-Federal sponsor shall perform such investigations in accordance with such written direction;

k. Assume, as between the Federal Government and the non-Federal sponsor, complete financial responsibility for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for construction, operation, and maintenance of the project;

l. Agree, as between the Federal Government and the non-Federal sponsor, that the non-Federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability, and to the maximum extent practicable, operate, maintain, repair, rehabilitate, and replace the project in a manner that will not cause liability to arise under CERCLA.

m. Prevent obstructions or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments) such as any new developments on project lands, easements, and rights-of-way or the addition of facilities which might reduce the level of protection the project affords, hinder operation and maintenance of the project, or interfere with the project's proper function;

n. Not less than once each year, inform affected interests of the extent of protection afforded by the project;

o. Agree to participate in and comply with applicable Federal floodplain management and flood insurance programs;

p. Comply with Section 402 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 701b-12), which requires a non-Federal sponsor to prepare a floodplain management plan within one year after the date of signing a project partnership agreement, and to implement such plan not later than one year after completion of construction of the project;

q. Publicize floodplain information in the area concerned and provide this information to zoning and other regulatory agencies for their use in adopting regulations, or taking other actions, to prevent unwise future development and to ensure compatibility with protection levels provided by the project;

r. Shall not use any project features or lands, easements, and rights-of-way required for such features as a wetlands bank or mitigation credit for any other project;

s. Pay all costs due to any project betterments or any additional work requested by the sponsor, subject to the sponsor's identification and request that the Government accomplish such betterments or additional work, and acknowledgement that if the Government in its sole discretion elects to accomplish the requires to so notify the non-Federal sponsor in writing that sets forth any applicable terms and conditions.

4.4.4 Non-Federal Sponsor Letter of Intent



State of Louisiana



March 13, 2015

Colonel Hansen
New Orleans District
U.S. Army Corps of Engineers
P.O. Box 60267
New Orleans, LA 70160-0267

Dear Colonel Hansen:

The State of Louisiana, acting through the Coastal Protection and Restoration Authority Board and the Coastal Protection and Restoration Authority, is pleased to offer its continuing support of the Southwest Coastal Louisiana Feasibility Study (SCLFS). This study is a critical component of the 2012 Comprehensive Master Plan for a Sustainable Coast and would provide coastal restoration measures including marsh creation, shoreline protection and hydrologic/salinity control as well as nonstructural hurricane and storm surge damage risk reduction measures for eligible properties within the 25-year floodplain across 4,700 square miles in Calcasieu, Cameron, and Vermilion Parishes.

This letter, while not legally binding on the State as an obligation of future funds as subject to appropriation by the State Legislature, generally declares the State's support for the SCLFS as described in the Revised Integrated Draft Feasibility Report and Programmatic Environmental Impact Statement dated March 2015. The State understands the nonstructural measures will consist of floodproofing, elevating structures, and in some cases, buying-out properties in the area. To the maximum extent practicable, implementation will target willing participants in the nonstructural program. Though never the preferred option, we understand eminent domain may be used if determined to be warranted by the USACE. Conditions that may warrant the use of eminent domain will include but are not limited to:

- a. Severe Repetitive Loss properties (as established by the Federal Emergency Management Agency (FEMA)); and/or
- b. Properties located in a regulatory floodway (as established by FEMA).

Unless determined to be warranted as described above, eminent domain will not be used to require an unwilling landowner to participate in floodproofing, elevating, or buy-out of a structure.

It should be noted that a National Nonstructural Flood Protection policy has not been developed and adopted by the USACE. Furthermore, the specifics of how the nonstructural measures for the SCLFS will be implemented have not yet been developed. Therefore, the State of Louisiana is being asked to support a plan for which many of the implementation details have not yet been determined.

To clarify, the State of Louisiana fully supports the SCLFS and support *in principle* its nonstructural component. In fact, our own Master Plan includes a nonstructural component and

we believe it is an essential part of an overall strategy to reduce risks associated with hurricanes and storm surge damages to our citizens.

The State of Louisiana looks forward to continuing to work with the USACE to develop the nonstructural measures that are part of the SCLFC and to ensure they are implemented in a fair and equitable way for affected individuals and communities.

Sincerely,

A handwritten signature in blue ink, appearing to read "Chip Kline", written over a horizontal line.

Kyle R. "Chip" Kline, Jr.

Chairman

Coastal Protection & Restoration Authority Board of Louisiana

CK/BH/jm

c: Kyle Graham, CPRA Executive Director

Bren Haase, CPRA Administrator

Jennifer Mouton, CPRA Study Manager

Troy Constance, USACE

Darrel Broussard, USACE

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